## REMARKS

This amendment is responsive to the office action mailed June 18, 2004. Claims 26, 28 and 29 have been cancelled without prejudice. Claims 1-25 and 27 therefore remain pending in the application.

### SPECIFICATION

Applicant(s) have made minor wording changes in several paragraphs in the specification. Entry of these changes is respectfully requested.

### REJECTION UNDER 35 U.S.C. § 102(E)

Claims 1, 24 and 27-29 were rejected under 35 U.S.C. §102(e) as being anticipated by Gallagher (U.S. Patent No. 5,956,619). For the following reasons, this rejection is respectfully traversed.

Initially, it will be noted that very minor amendments have been made to independent claims 1, 24 and 27. In claim 1, these amendments are intended to further set forth that the RF transmissions from the mobile platform, which are relayed by the satellite transponder to the central controller, are first power correction commands that are transmitted from a central controller back to the mobile platform. In the last paragraph of claim 1, minor amendments have been made to make clear that second power correction commands to said mobile platform are transmitted as part of

the second control loop to further adjust the power level of the RF transmissions being made by the mobile platform.

Claim 24 has been amended to more positively recite that the power level of the RF signals in question are those RF signals that have been transmitted by the mobile platform and relayed by the space-based transponder to the controller. A further amendment has been made to more positively recite that the power level commands transmitted in accordance with the second power level control loop are made independently of, <u>and inbetween</u>, receipt of the first power level commands from the controller to the mobile platform.

Claim 27 has been amended to recite that the power level commands relayed back to the mobile platform are <u>for use by said mobile platform in adjusting a power level of said RF signals</u> being transmitted by the mobile platform, and further that the second power level control loop is formed <u>independent of said first power level control loop</u>.

Claims 1, 24 and 27 define systems that are fundamentally different from the Gallagher et al system. Gallagher et al deals with a user terminal (5) that is in communication with a pair of NGSO (2) satellites. Gallagher differs fundamentally from the present system in that there are <u>not</u> two distinct power control loops being used <u>to control the power of the same RF transmission from the mobile terminal</u>. The present invention makes use of a first control loop in which a controller monitors RF transmissions from the mobile platform, relayed by a space-based transponder, to the controller. The controller transmits first power correction commands, in accordance with a first control loop, back to the space-based transponder that are relayed therefrom to

the mobile platform. In this manner an accurate power level correction can be maintained by the controller continuously monitoring, in real time, RF transmissions emanating from the mobile platform. An independent second control loop is also formed between the space-based transponder and the mobile platform that operates on the same RF transmission being monitored by the controller. The second control loop involves using the space-based transponder to further monitor the RF transmissions being relayed to the controller and to generate second power correction commands back to the mobile platform during those time periods inbetween when the first power correction commands are being transmitted from the space-based transponder to the mobile platform. The second power correction commands enable a further degree of power correction in the event the attitude, airspeed, etc. of the mobile platform is rapidly changing, and thus rapidly affecting the signal quality of its RF transmissions to the space-based transponder.

This system is not disclosed or suggested by Gallagher et al. As the examiner will note in Gallagher et al, and particularly in column 7, lines 28-67, column 8, lines 1-67 and column 9, lines 1-8, the Gallagher et al system involves monitoring the power control of two distinct signals being sent to two different NGSO satellites (2). The power level of each signal received by each of the NGSO satellites, as determined by each NGSO satellite, is then transmitted to a GSO satellite over links (33a) and (33b). Information is then sent by the GSO satellite to the NGSO satellites of any short fall in signal strength (relative to a threshold power or signal strength level), which information is then relayed to the user terminal (5). The user terminal (5) may then adjust its transmit power towards one or the other, or both, of the NGSO satellites.

A second embodiment of the power control scheme described above is implemented with the GSO satellite (3) demodulating receive signals from the user terminal that are relayed from both of the NGSO satellites (2), and performing the signal strength comparison and power deficit calculations before relaying information back to the terminal (5) via one or more of the NGSO satellites. A third embodiment has the power control of the user uplink signal implemented on the NGSO satellites only. In this embodiment each NGSO satellite independently determines whether the signal strength of its respective uplink (31a) or (31b) should be increased or decreased and sends a signal to the user terminal accordingly.

In view of the foregoing, it will be appreciated that Gallagher et al simply does not implement two power control loops on the same RF signal being transmitted from a single mobile platform. There is further no suggestion in Gallagher et al as to how to implement two different power control loops that would apply two different power correctional signals to the same RF transmissions being generated from the mobile platform. For this reason, reconsideration and withdrawal of this rejection is respectfully requested.

**REJECTION UNDER 35 U.S.C. § 103**

Claims 2-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gallagher et al in view of Dintelmann et al (U.S. Patent No. 6,256,496). In view of the amendments made to independent claim 1, it is believed that claims 2-5 are clearly in form for allowance and this rejection regarding claims 2-5 has been rendered moot.

Regarding claim 6, it will be noted that this claim has been amended to more positively recite that the RF transmissions in question are from said mobile platform to

said space-based transponder. Further amendments have been made to more positively recite that the received RF transmissions are relayed from said space-based transponder to a central controller, and that a power level of the RF transmissions is adjusted, in real time, to maintain the signal to noise ratio of the RF transmissions from said mobile platform to said space-based transponder within said predetermined range at a receiver of said space-based transponder.

Again, this is fundamentally different from the Gallagher et al/Dintelmann et al combination. Gallagher et al, as the examiner has noted, does not teach using a central controller to determine a signal-to-noise ratio of the RF transmissions received by the satellite transponder, in real time. Dintelmann et al does not remedy this shortcoming. Dintelmann et al is not specifically concerned with the signal-to-noise ratio that is actually received at the receiver of a space-based transponder. In fact, it appears that Dintelmann et al is concerned with the quality of the link from each one of the VSAT systems to the controller (2). However, the present invention is concerned with the quality of the communications link between the mobile platform and the input of the receiver of the space-based transponder. It is this power level seen by the receiver of the space-based transponder that is the pertinent power level that the present invention is concerned with. There is no suggestion in Dintelmann et al that the power level actually seen (i.e., by a receiver of the satellite 5) is the power level that is being monitored. Accordingly, Dintelmann et al appears to disclose a more conventional arrangement by which the power level as "seen" by the ground based hub is the pertinent power level being monitored. For this reason, reconsideration and withdrawal

of the rejection of claim 6 based on the Gallagher et al/Dintelmann et al combination is respectfully requested.

Claims 8-13 and 19-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dintelmann et al in view of Chang (U.S. Patent no. 6,606,307). For the reasons given in connection with the analysis of Dintelmann et al, this rejection is also respectfully traversed. As noted above, Dintelmann et al is not concerned with the signal-to-noise ratio of the RF signal which is directed at a receiver of the space-based transponder by the mobile platform. Dintelmann et al further involves selecting specific frequencies that the VSAT stations are to transmit at, based on several parameters established by the hub (2). Dintelmann et al is not concerned at all with determining effective isotropic radiated power (EIRP), let alone determining a power spectral density that reaches a GEO arc within which the space-based transponder resides. In addition, Dintelmann et al is not concerned whatsoever with considering a signal pattern of an antenna of one of the VSATs as part of a process for determining an actual EIRP that reaches the GEO arc. In fact, this feature would be superfluous in the system of Dintelmann et al because Dintelmann is only concerned with the quality of the signal reaching the hub (2), not with the EIRP or power spectral density (PSD) of the RF signals reaching the GEO arc of the satellite (5) in Dintelmann et al.

Chang et al, in column 3 cited by the examiner, only discloses that present day high gain beams used with mobile communications systems deliver more EIRP with less RF power from satellites. Column 13, lines 58-65 mainly restates that the presently described preferred embodiments can also be used with optical or other information carrying transmission systems to perform the same or similar functions, and further that

with regard to MEO satellites 102-124, the present invention can be utilized for LEO, GEO, or other orbital dynamic scenarios. The sections do not in any way disclose or suggest using a signal pattern of an antenna of one of the mobile platforms as a component of a determination as to <u>an actual EIRP of an RF signal</u> transmitted from a mobile platform that reaches a GEO arc. There is no other disclosure in Chang relating to factoring in the signal pattern of the antenna in determining an actual EIRP of an RF signal reaching a GEO arc, where the RF signal is being transmitted by a mobile platform. The undersigned has noted that in column 7, a brief discussion is presented regarding the use of multiple data rates for transmissions, and further the use of antennas that provide a restricted field of view (FOV). Specifically, an example is given where antennas used by the user have restricted bandwidths that provide directionality to an individual MEO satellite 102 or 104 (making reference to Figure 3 of the Chang '307 patent). The use of these restricted FOV antennas is stated to allow both of the MEO satellites 102 and 104 to both utilize channels 224-230 of a given subband 218 simultaneously without substantial interference. Additional discussion of the benefits and operation relating to the use of restricted FOV antennas is present in column 8. However, there is absolutely no suggestion of using a <u>target EIRP</u>, and a <u>signal pattern of an antenna</u> of the mobile platform, to determine an <u>actual EIRP</u> of the RF signal <u>reaching a GEO arc</u> within which the space-based transponder resides.

With specific reference to independent claim 19, it is further reiterated that the combination of Dintelmann et al and Chang et al simply does not disclose or suggest using an approximated signal-to-noise ratio to extrapolate an EIRP value of an RF signal that is being transmitted from the mobile platform and being received by a space-

based signal relaying device, and further of using the EIRP value to estimate an actual EIRP of the RF signal transmitted from the space-based signal relaying device.

Claims 14-18 and 21-23 were also rejected under 35 U.S.C. § 103(a) as being unpatentable over Dintelmann et al in view of Chang et al as applied in claim 13 and further in view of Gallagher et al. This rejection is also respectfully traversed. Minor additional clarifying language has been added to claim 15 to even more positively point out that the power spectral density of the RF signal experienced at a geosynchronous arc within which said space-based transponder resides, is what is being modified by the power correction commands to remain within a predetermined limit. Again, the system defined by claim 15 is not suggested or disclosed by the references cited by the examiner. In view of this amendment and the remarks relating to claim 8, withdrawal of this rejection is respectfully requested.

**Dependent claims**

In view of the amendment to the independent claims and the remarks regarding these claims, it is submitted that the dependent claims are also now in form for allowance, and that the various rejections to the dependent claims have been rendered moot.

**CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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